

CLAIMS

What is claimed is:

1. A graft compatible with living animal tissue, said graft comprising a thin flexible substrate having an attachment region biocompatible with said tissue, said attachment region being engageable with said living animal tissue for attachment of said substrate thereto, said attachment region having means for promoting growth of said living animal tissue across said attachment region to sealingly attach said substrate to said tissue.

2. A graft according to Claim 1, wherein said growth promoting means comprises a plurality of pores extending throughout said attachment region, said pores being sized to promote growth of said living animal tissue within said pores and thereby across said attachment region.

3. A graft according to Claim 2, wherein said substrate comprises a plurality of interlaced filamentary members, said pores being defined by interstices formed between said filamentary members.

4. A graft according to Claim 3, wherein said substrate comprises an elongated tube, one of said attachment regions being positioned at each end of said tube.

5. A graft according to Claim 4, wherein said tube is a bifurcated tube.

6. A graft according to Claim 4, wherein said filamentary members are interlaced by weaving, said filamentary members comprising said attachment regions being woven with fewer filamentary members per unit area than said filamentary members comprising a portion of said tube between said attachment regions, thereby providing relatively larger interstices over said attachment regions and forming said pores adapted to promote growth of said living animal tissue across said attachment regions, said portion of said tube between said attachment regions having interstices sized relatively smaller, thereby making said portion between said attachment regions substantially impermeable to fluids allowing said tube to act as a fluid conduit.

7. A graft according to Claim 6, wherein said pores extending throughout said attachment regions are sized to provide a permeability of about 1000 cc/cm²/min for promoting growth of said living animal tissue across said attachment regions, said portion of said tube between said attachment regions having a permeability of about 300 cc/cm²/min and being substantially fluid impermeable.

8. A graft according to Claim 6, wherein said filamentary members comprising said attachment region have a coating which promotes healing of living animal tissue.

9. A graft according to Claim 8, wherein said coating is selected from the group consisting of thrombin, collagen and silicone.

10. A graft according to Claim 1, wherein said substrate comprises an elastic, non-woven membrane and said growth promoting means comprises a plurality of pores extending throughout said attachment region, said pores being sized to promote growth of said living animal tissue within said pores and thereby across said attachment region.

11. A graft according to Claim 10, wherein said pores are formed by piercing said membrane throughout said attachment region.

12. A graft according to Claim 11, wherein said membrane comprises an elongated tube, one of said attachment regions being positioned at each end of said tube.

13. A graft according to Claim 12, wherein said pores have an average size between about 100 microns and about 200 microns in diameter.

14. A graft according to Claim 12, wherein said membrane comprising said attachment regions has a coating which promotes healing of living animal tissue.

15. A graft according to Claim 14, wherein said coating is selected from the group consisting of thrombin, collagen and silicone.

16. A graft according to Claim 2, wherein said substrate comprises a thin flexible membrane of expanded polytetrafluoroethylene, said membrane being expanded in said attachment region at an expansion rate adapted to form said pores sized to promote growth of

said living animal tissue across said attachment region.

17. A graft according to Claim 16, wherein said membrane comprises an elongated tube, one of said attachment regions being positioned at each end of said tube, said membrane between said attachment regions being formed by expanding said polytetrafluoroethylene at a second expansion rate relatively lower than said first named expansion rate thereby yielding a substantially impermeable tube between said attachment regions.

18. A graft according to Claim 17, wherein said membrane comprising said attachment regions has a coating which promotes healing of living animal tissue.

19. A graft according to Claim 18, wherein said coating is selected from the group consisting of thrombin, collagen and silicone.

20. A graft according to Claim 17, wherein said pores in said attachment region have an average size between about 100 microns to about 200 microns in diameter.

21. A graft according to Claim 1, wherein said growth promoting means comprises a textured surface positioned at said attachment region, said textured surface having an increased surface area favoring growth of said living animal tissue across said attachment region.

22. A graft according to Claim 21, wherein said textured surface comprises a plurality of loops extending outwardly from said substrate, said loops providing said increased surface area favoring growth of said living animal tissue.

23. A graft according to Claim 22, wherein said substrate comprises a plurality of interlaced filamentary members, said filamentary members being overfed during interlacing at least in said attachment region to form said loops extending outwardly to form said textured surface.

24. A graft according to Claim 22, wherein said substrate comprises a plurality of filamentary members interlaced by weaving and said loops comprise floats positioned at least in said attachment region and extending outwardly to form said textured surface.

25. A graft according to Claim 21, wherein said substrate comprises a plurality of interlaced filamentary members, said filamentary members being textured filamentary members at least in said attachment region, said textured filamentary members having increased bulk providing said increased surface area favoring growth of said living animal tissue.

26. A graft according to Claim 21, wherein said textured surface comprising said attachment region has a coating which promotes healing of living animal tissue.

27. A graft according to Claim 26, wherein said coating is selected from the group consisting of thrombin, collagen and silicone.

28. A graft according to Claim 1, wherein said attachment region comprises a surface having a coating which promotes healing of living animal tissue.

29. A graft according to Claim 28, wherein said coating is selected from the group consisting of thrombin, collagen and silicone.

30. A graft according to Claim 1, wherein said substrate comprises a plurality of interlaced first filamentary members formed of a first material, said attachment region comprising a plurality of interlaced second filamentary members formed of a second material different from said first material, said second material having a characteristic eliciting a healing response from living animal tissue.

31. A graft according to Claim 30, wherein said second material is selected from among the group consisting of nylon, polypropylene and polyethylene.